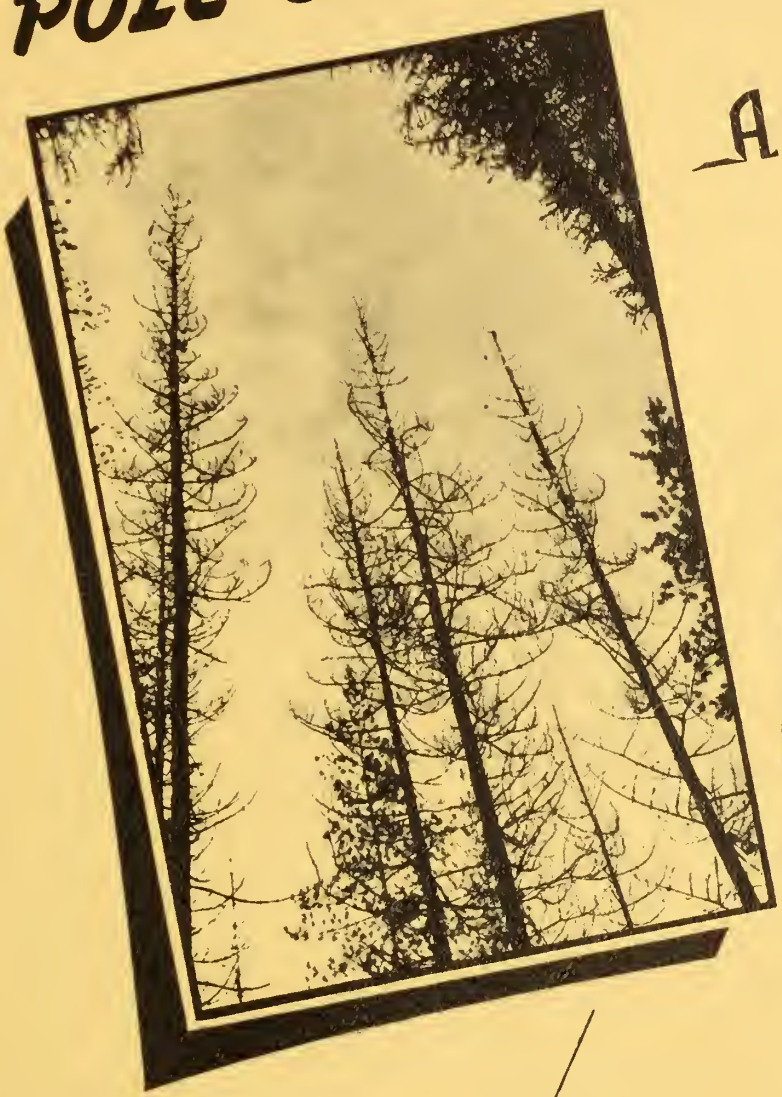
POLE BLIGHT..

A new disease of western white pine



by

C. A. Wellner

- Northern -
Rocky Mountain
Forest & Range
Experiment Station
Missoula Montana
Chas. L. Tebbe, Director

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

STATION PAPER NO. 8

NOVEMBER 1947

POLE BLIGHT
A NEW DISEASE OF WESTERN WHITE PINE

By

C. A. Wellner
Silviculturist, Northern Rocky Mountain Forest and
Range Experiment Station

WHAT IS IT?

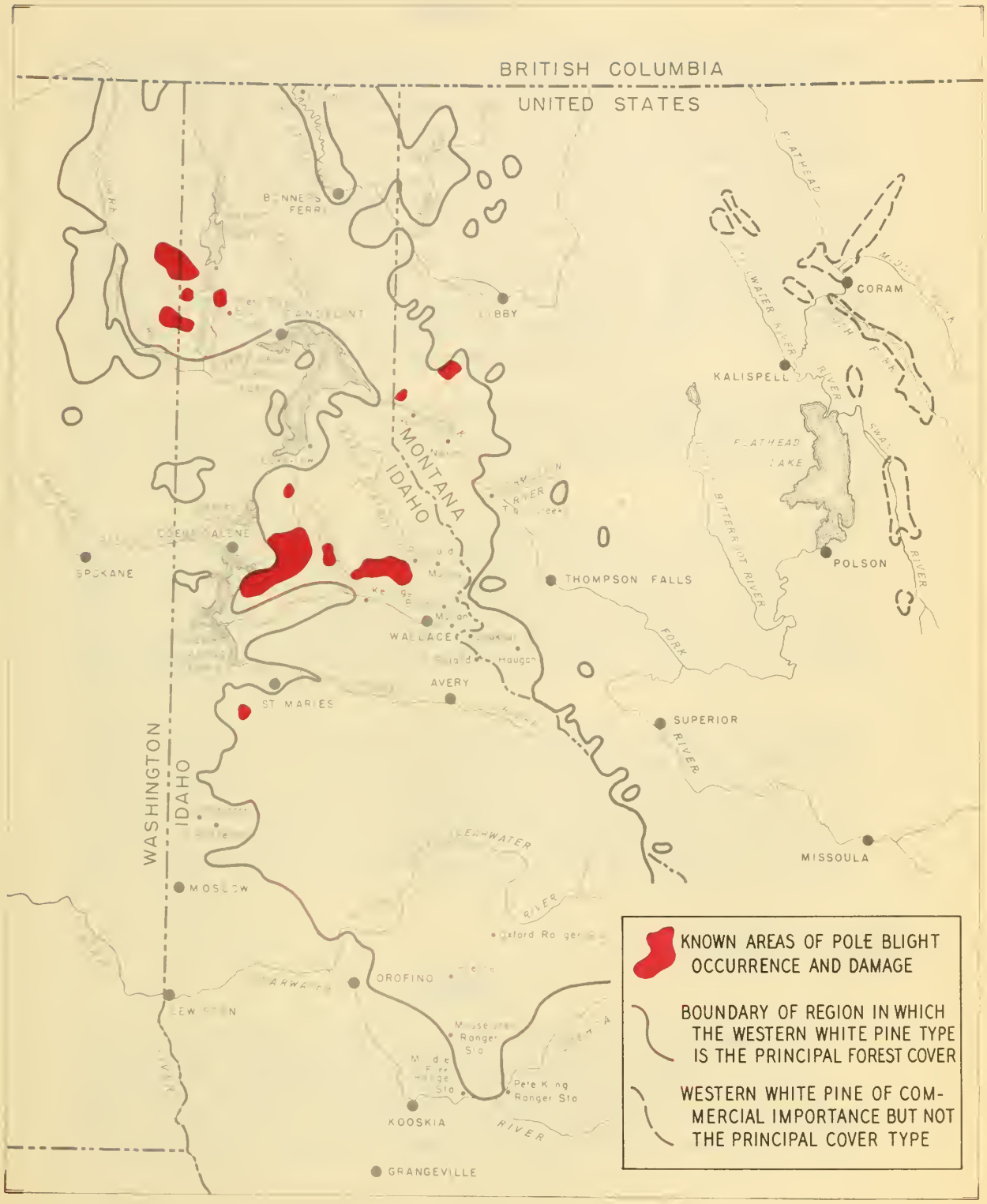
Pole blight is a disease of pole-size western white pine trees. Although recognized for at least ten years, its cause is as yet unknown.

HOW DAMAGING?

Pole blight is a killer. Apparently attacking pole-size western white pine trees of any vigor or crown class, it seems to require from one to ten years to kill a tree. White pine is generally believed to be the only species susceptible, although there is a possibility that grand fir and Douglas-fir also may be attacked. Not enough time has elapsed for us to say how much damage pole blight is capable of doing in white pine stands. We do know, however, that there has been a high percentage of kill in areas of long-standing attack. The remaining white pines in these areas appear unhealthy and on their way out. There is no evidence, as yet, of a tree recovering once attacked. Already at least three national forests have made salvage sales of dying trees.

ITS EXTENT

A recent rough survey by the Forest Service shows that the disease is making inroads in pole-size western white pine stands on five national forests. This survey estimates that stands on some 70,000 acres are at present damaged to some degree. Some areas already show 100-percent kill of white pine; elsewhere the trees are just starting to die. Spread apparently is not a quick, overnight affair but a gradual process.



Known occurrence of pole blight

HISTORY

Pole blight was first observed on the Coeur d'Alene and Kaniksu National Forests in the 1930's. At that time the damage was believed to be caused from some root disease. However, a cooperative study in 1938 between the Forest Service, the University of Idaho School of Forestry, and the Forest Insects Laboratory, Bureau of Entomology and Plant Quarantine, showed that although many of the dying white pines had root rots, many others apparently did not. The Forest Service and the University of Idaho School of Forestry again studied the problem during 1941. This work was done by Loren K. Baker under the supervision of Dr. John Ehrlich of the University of Idaho. Again there were no conclusive results, although the study did point to the possibility of a fungus being the responsible agent.

A large number of foresters, pathologists, entomologists, soils scientists, ecologists, and other specialists have examined stands stricken by pole blight. None of these has been able to point to the cause.

Since 1941, foresters have become increasingly alarmed at the spread and seriousness of the disease. Repeated attempts and appeals have been made to have the disease studied. During 1947, Dr. D. S. Welch, on sabbatical leave from Cornell University and working under a research grant from the University of Idaho, has been making a six-month study of the disease, working in cooperation with the Forest Service.

The disease has been known by various local names: The Unknown Disease, the Coeur d'Alene Disease, Strong's Disease, the Coeur d'Alene Malady, and X-Disease. Finally, in June 1947, the Northern Rocky Mountain Forest and Range Experiment Station proposed that the disease be called Pole Blight because it apparently attacks only pole-size trees between 40 and 100 years of age.

SYMPTOMS

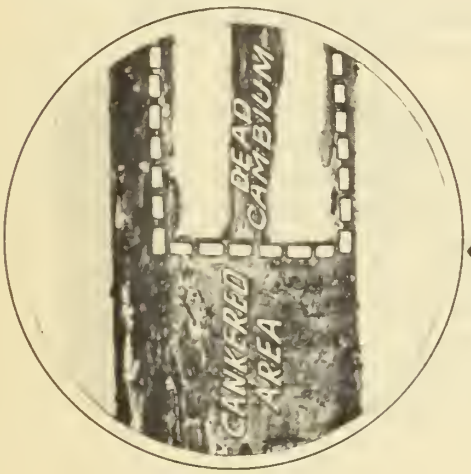
The most noticeable symptom of pole blight is a yellowing of the foliage of groups of trees or of isolated trees. Closer inspection shows a thinning out of the foliage in the upper crown of the tree, a stunting of needle growth, and a reduction in leader growth which is usually followed by an abundant flow

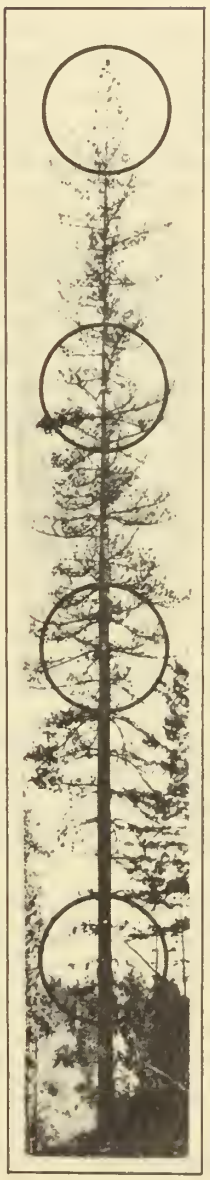
SOME SYMPTOMS OF POLE BLIGHT

REDUCED LEADER GROWTH

CANKERS

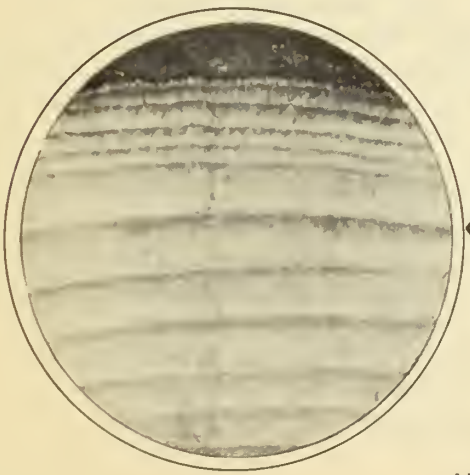
(BARK CUT AWAY FROM AREA ENCLOSED BY BROKEN LINES TO SHOW DEAD CAMBIUM BENEATH CANKER)





PITCH FLOW

REDUCED RADIAL GROWTH



WHITE PINE TREE

ATTACKED BY POLE BLIGHT

of resin through the bark along the trunk, anywhere from the base of the tree well into the crown. This flow comes from cankered areas which may range in length from a few inches to several feet. The cambium beneath these cankered areas is dead. At this stage, or before, yellowing of foliage shows up in the upper part of the crown and usually progresses from the top downward. In some trees the top of the crown will have died by the time the basal part turns yellow. Usually, diameter growth slows down.

WHAT DOES POLE BLIGHT MEAN TO FORESTRY IN THE INLAND EMPIRE?

This is the sixty-four dollar question! One indication is the situation in the Coeur d'Alene National Forest. Here some 38,000 acres are definitely damaged and the disease is suspected in another 24,000 acres. The Coeur d'Alene Forest has only 108,000 acres of pole-size white pine type, hence pole blight has already eaten into one-third or one-half of the total acreage.

This tells only part of the story. In the Inland Empire, white pine from 40 to 100 years old is scarce. This age class is a serious bottleneck in management plans. Deficient in acreage, these pole stands will have to bear the brunt of cutting after existing old-growth timber has been depleted and until younger age classes resulting from fire and logging of the past 40 years reach merchantable size. In brief, if pole blight continues to spread, the situation is extremely serious for continued white pine production, at least in part of its range. This disease can nullify efforts to perpetuate white pine.

WHAT IS NEEDED?

The present need may be summed up in one word - STUDY! The cause of the disease must first be found. How it acts and whether or not it can be controlled must then be determined. The crying need at this time is for more intensive research.

A full-time pathologist should be assigned to the problem to aid in the excellent work being done by the University of Idaho. Thirty years ago the Office of Forest Pathology, Bureau of Plant Industry, supported a laboratory in Missoula to study forest tree diseases in the Inland Empire. This laboratory was closed, however, about the time of World War I, and this region has been without a forest pathologist engaged full time in research ever since. It is high time the situation is remedied if we are to keep on top of pole blight and the many other forest diseases which confront us.

Death by pole blight rides high in this stand on the Coeur d'Alene forest